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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/236,017	01/22/99	GREVEN	

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IM22/0915

EXAMINER

ART UNIT	PAPER NUMBER
1733	

DATE MAILED: 09/15/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/236,017

Applicant(s)

Greven, Richard

Examiner

Jessica L Rossi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☐ received.
2. ☐ received in Application No. (Series Code / Serial Number) _____.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 7 is objected to because of the following informalities:

Claim 7, line 3: delete "said" after "opposed" and insert --side--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. Claims 4, 5, 15, and 16 were rejected under 35 U.S.C. 112, second paragraph, in the previous office action. This rejection has been withdrawn.
3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 6 recite the limitation "along the longitudinal axis between said front and rear ends and across the transverse axis between said opposed sides of said honeycomb core" in lines 14-16 and lines 12-14, respectively. There is insufficient antecedent basis for this limitation in the claim. Examiner notes that honeycomb "core" reads on various shaped materials but does not necessarily define something having longitudinal and transverse axes as stated above. Applicant is asked to clarify.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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6. Claims 1, 3-8, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross et al. (US 5824255) in view of Reed et al. (US 5913766) and Gnagy et al. (US 5119535).

With respect to claim 1, Ross et al., directed to a process for forming and shaping a workpiece made of honeycomb core, teaches making complex contoured products by heating the honeycomb core, forming the honeycomb against a complex contoured female die by applying pressure from a complex contoured male die to bend the honeycomb thereby creating a contoured shape along the longitudinal axis and across the transverse axis, and removing the deformed honeycomb from the dies to allow it to set and be trimmed to arrive at the final product wherein a contoured arc extends along the longitudinal axis and across the transverse axis (Figures 7-9 and 17-18; column 1, lines 31-33; column 1, lines 7, lines 42-51; column 8, lines 64-67; column 9, lines 10-20).

Although the reference is silent as to deforming the honeycomb core at ambient temperature, deforming the honeycomb at ambient temperature or heated temperatures would have been within purview of one of ordinary skill in the art depending on the type of honeycomb material used, which would also have been within purview of one of ordinary skill in the art, and absent any unexpected results. It is noted that the reference also states that the honeycomb is heated to the proper forming temperature for the type of honeycomb core workpiece being used (column 7, lines 44-46). Furthermore, it is well known in the art to deform a honeycomb core made from material, such as Kraft paper, that does not require a heating step. Therefore, optionally in view of Reed et al. (column 6, lines 40-62), it would have been obvious to one of ordinary skill in the art at the time the invention was made to deform the honeycomb of Ross et

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al. at ambient temperature depending on the type of material selected because only the expected results would have been achieved.

Although the reference is silent as to cutting the honeycomb before deforming, Gnagy et al., directed to a method for reconfiguring structures into more complex shapes, teaches cutting a honeycomb core to a desired thickness before deformation takes place (column 5, lines 4-7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to cut the honeycomb core of Ross et al. prior to deforming in order to eliminate most of the final handworking and shaping (Gnagy et al., column 5, lines 4-7).

Regarding claim 3, Ross et al. teaches a complex contoured honeycomb core that has a concave, symmetrical contour on its upper surface and a convex, symmetrical contour on its bottom surface (Figures 16-18).

Regarding claims 4-5, since it is known to use such technology as that described by Ross et al. to form complex shaped articles from a honeycomb core, the specific contours of the shaped articles would have been within purview of one of ordinary skill in the art depending on the particular article made and absent any unexpected results or assertion of novelty per se.

Regarding claim 6, Ross et al. teaches placing the honeycomb core on a female die having a curved top wall, a bottom wall, and opposed end and side walls, applying pressure by means of a male die to form the core against the female die until the core adapts to the contoured configuration of the top wall of the female die, removing the contoured honeycomb from the dies, and trimming the contoured honeycomb to arrive at the final product (Figures 7-9; column 9, lines 10-20).

Although the reference is silent as to deforming the honeycomb core at ambient temperature, deforming the honeycomb at ambient temperature or heated temperatures would have been within purview of one of ordinary skill in the art depending on the type of honeycomb material used, which would also have been within purview of one of ordinary skill in the art, and absent any unexpected results. It is noted that the reference also states that the honeycomb is heated to the proper forming temperature for the type of honeycomb core workpiece being used (column 7, lines 44-46). Furthermore, it is well known in the art to deform a honeycomb core made from material, such as Kraft paper, that does not require a heating step. Therefore, optionally in view of Reed et al. (column 6, lines 40-62), it would have been obvious to one of ordinary skill in the art at the time the invention was made to deform the honeycomb of Ross et al. at ambient temperature depending on the type of material selected because only the expected results would have been achieved.

Although the reference is silent as to cutting the honeycomb before deforming, Gnagy et al., directed to a method for reconfiguring structures into more complex shapes, teaches cutting a honeycomb core to a desired thickness before deformation takes place (column 5, lines 4-7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to cut the honeycomb core of Ross et al. prior to deforming in order to eliminate most of the final handworking and shaping (Gnagy et al., column 5, lines 4-7).

Although the reference is silent as to bending the honeycomb after removal from the dies, Gnagy et al. teaches applying pressure to bend the formed honeycomb core after removal from a mold (column 11, lines 65-68). It would have been obvious to one of ordinary skill in the art at the time the invention was made to bend the formed honeycomb of Ross et al. in order to further

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deform the honeycomb to achieve a desired arc configuration (Gnagy et al., column 11, lines 65-68).

Regarding claim 7, the contoured configuration in the top wall of the female die of Ross et al. is concave (Figures 7-9).

Regarding claim 8, Ross et al. is silent as to chamfering the edge portions of the honeycomb prior to cutting. However, Gnagy et al. teaches chamfering the edge portions of the honeycomb during the first cutting step in order to increase the dimensional stability of the core (column 10, lines 64-66). It would have been obvious to one of ordinary skill in the art at the time the invention was made to chamfer the edges of the core of Ross et al. prior to or during the cutting step in order to increase the dimensional stability of core (Gnagy et al., column 10, lines 64-66).

Regarding claim 14, Ross et al. teaches a complex contoured honeycomb core that has a concave, symmetrical contour on its upper surface and a convex, symmetrical contour on its bottom surface (Figures 16-18).

Regarding claims 15-16, since it is known to use such technology as that described by Ross et al. to form complex shaped articles from a honeycomb core, the specific contours of the shaped articles would have been within purview of one of ordinary skill in the art depending on the particular article made and absent any unexpected results or assertion of novelty per se.

7. Claims 2 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross et al. and Reed et al. and Gnagy et al. as applied to claims 1, 3-8, and 14-16 above, and further in view of Chimiak (US 5514017).

Regarding claim 2, Chimiak, directed to constructing a surfboard from a honeycomb core, teaches bonding a first layer 25 of fiber reinforced resin material to the top surface, bottom surface, and sides of the honeycomb core (column 1, lines 66-67; column 4, lines 4-16; Figure 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to bond the material taught by Chimiak to the honeycomb core of Ross et al. to provide structural rigidity and maintain the shape of the core (Chimiak, column 3, lines 61-63).

Regarding claim 9, Chimiak teaches a honeycomb core that can be made of paper fibers (column 3, lines 47-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the honeycomb core taught by Chimiak to form the complex shapes of Ross et al. because this material is lightweight and strong (column 3, lines 23-24).

Regarding claims 10-11, Chimiak teaches bonding a first, glass fiber reinforced resin layer 25 to the top surface, bottom surface, and sides of the honeycomb core (column 1, lines 66-67; column 4, lines 4-16; Figure 1). The reference also teaches a second, epoxy resin layer 27 applied to the fiber reinforced layer 25 thereby saturating the layer 25 and coating the top and bottom surfaces and side edges of the honeycomb core (column 2, lines 1-5; Figure 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the epoxy resin layer 27 taught by Chimiak to the honeycomb core of Ross et al., because this layer provides a smooth surface on the honeycomb core (Chimiak, column 2, lines 4-5).

Regarding claim 12, although Chimiak is silent as to the epoxy resin layer 27 being glass or Kevlar, selection of the type of epoxy resin for layer 27 would have been within purview of one of ordinary skill in the art depending on the desired characteristics of this layer.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ross et al. and Reed et al. and Gnagy et al. and Chimiak et al. as applied to claims 1-12 and 14-16 above, and further in view of Long (US 4013810).

With respect to claim 13, Long, directed to forming articles that are complicated in shape and provide some capability for post-forming, teaches a thermoplastic core 12 molded in between two sheets 10 and 11 which are bonded to the core (column 1, lines 46-48; column 3, lines 55-57; Figure 1). The sheets 10 and 11 are made of a resin containing hollow glass spheres (column 2, lines 50-54). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the hollow glass spheres taught by Long into the resin mixture of Chimiak to impart certain structural characteristics to the layers bonded to the honeycomb core of Ross et al.

Response to Arguments

9. On page 3 of the arguments, Applicant argues that the honeycomb core is deformed at ambient temperature which is significantly less than that used in Gnagy et al. The examiner respectfully agrees with the Applicant in that there is no motivation to deform the honeycomb core of Gnagy et al. at ambient temperature wherein the objective of the reference is to heat the honeycomb in a molten bath in order to soften the honeycomb to avoid damage to the material during deformation (abstract).

This rejection has been withdrawn and new prior art has been applied under 35 U.S.C. 103(a). The new primary reference, Ross et al., does not specifically state deforming at ambient temperature but states that the honeycomb is heated to the proper forming temperature for the type of honeycomb core workpiece being used (column 7, lines 44-46). Therefore, how much

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the material is heated or whether the material is heated at all depends on the type of material selected to form the desired complex contoured article. The examiner respectfully points out that the specification of the present application does disclose honeycomb core materials that require heating upon deformation but also states that the honeycomb core material can also be provided from other material that does not require heating to deform it into contoured shapes (page 15, lines 18-20). The specification goes on to recite that Kraft paper having a honeycomb structure is an example of a core material that does not requiring heating. The examiner respectfully points out that the honeycomb material used in the secondary reference to Reed et al. also discloses deforming Kraft paper having a honeycomb structure in the absence of heat to achieve a contoured article.

10. Applicant's arguments filed on July 24, 2000 have been fully considered but they are not persuasive.

11. On page 4 of the arguments, Applicant argues that the Chimiak reference does not disclose honeycomb cores having complex, contoured shapes nor a method for making such articles.

This argument is not persuasive because Chimiak is only utilized for its teaching of bonding layers to a honeycomb core for structural rigidity and shape, using a honeycomb core made of paper fibers for its light weight and strength, and coating the layers to provide a smooth surface to the final product.

12. On page 4 of the arguments, Applicant argues that the Long reference has nothing whatsoever to do with the claimed method of the present application.

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This argument is not persuasive because Long is only utilized for its teaching of incorporating hollow spheres into a resin mixture to impart certain structural characteristics into the layer. Furthermore, the examiner respectfully points out that Long is directed to producing articles that are complicated in shape and provide some capability for post-forming (column 1, lines 46-48).

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jessica L. Rossi** whose telephone number is **703-305-5419**. The examiner can normally be reached on M-F (7:30-5:00) First Friday Off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7718 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jessica L. Rossi
Patent Examiner
Art Unit 1733



jl
September 12, 2000



Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700